

Name _____

Date _____ Block _____

Remember: The slope-intercept form for the equation of a line is $y = mx + b$ where

m is the slope and b is the y-intercept.

Writing an Equation of a Line given the slope and a point using $y=mx + b$:

- Use the point (x, y) and the slope (m) and substitute those three values into the formula for x , y , and m .

$$\mathbf{y} = \mathbf{m}\mathbf{x} + \mathbf{b}$$

- Solve for the y-intercept value (b) in the remaining equation.
- Use the slope(m) and the y-intercept(b) to write the equation by substituting those values only into

$$y = \mathbf{m}x + \mathbf{b}$$

Write an equation of the line that passing through the given point and has the given slope.

1. $(1, 9)$; slope 4 $m=4$
 $y = mx + b$ $b=5$

$$9 = 4(1) + b$$

$$y = 4x + 5$$

3 (3, 4); slope $\frac{1}{3}$ m

$$y = mx + b$$
$$-2 = \frac{1}{2}(3) + b$$

$$m = \frac{1}{3}$$
$$b = -3$$

$$y = \frac{1}{3}x - 3$$

2. $(4, 2)$; slope -2 $m = -2$
 $y = mx + b$ $b = 10$

$$\begin{aligned} 2 &= -2(4) + b \\ 2 &= -8 + b \end{aligned}$$

$$y = -2x + 10$$

*4. $(-4, -2)$; slope $-\frac{3}{5}m$

X 5

$$y = mx + b$$
$$-2 = -\frac{3}{5}(-4) + b$$

$$m = -\frac{3}{5}$$

$$b = -\frac{22}{5}$$

$$-2 = \frac{12}{5} + b$$

6. $(-6, 2)$; slope undefined

$$y = -\frac{3}{5}x - \frac{22}{5}$$

VUX

$$X \stackrel{\text{cong}}{=} G$$

$$\begin{array}{r} -2 = 1 + b \\ -1 \quad -1 \\ \hline -3 = b \end{array}$$

Special Cases

5. $(4, 5)$; slope 0

$$y = mx + b$$
$$5 = 0(4) + b$$

$$m=0$$

$$b=5$$

$$5 = 0 + b$$

$$5 = b$$

$$y = 0x + 5$$

HDY

Why Did Gyro Go Into a Bakery?



For each exercise below, find the equation of the line that has the given slope and passes through the given point. Circle the letter next to the correct equation. Then write this letter in each box at the bottom of the page that contains the number of that exercise.

① $m = 2; (3, 2)$	<input type="checkbox"/> G	$y = 2x + 1$	<input checked="" type="checkbox"/> R	$y = 2x - 4$
② $m = -3; (1, 4)$	<input type="checkbox"/> O	$y = -3x + 7$	<input type="checkbox"/> P	$y = -3x + 2$
③ $m = -5; (-1, 3)$	<input type="checkbox"/> M	$y = -5x - 2$	<input type="checkbox"/> D	$y = -5x + 6$
④ $m = 3; (-4, -7)$	<input type="checkbox"/> V	$y = 3x + 1$	<input type="checkbox"/> E	$y = 3x + 5$
⑤ $m = -1; (5, -2)$	<input type="checkbox"/> U	$y = -x + 3$	<input type="checkbox"/> C	$y = -x - 1$
⑥ $m = \frac{1}{2}; (6, 1)$	<input type="checkbox"/> W	$y = \frac{1}{2}x - 5$	<input type="checkbox"/> H	$y = \frac{1}{2}x - 2$
⑦ $m = -\frac{2}{3}; (3, 4)$	<input type="checkbox"/> A	$y = -\frac{2}{3}x - 7$	<input type="checkbox"/> I	$y = -\frac{2}{3}x + 6$
⑧ $m = \frac{4}{3}; (-2, 0)$	<input type="checkbox"/> K	$y = \frac{4}{3}x + \frac{5}{2}$	<input type="checkbox"/> F	$y = \frac{4}{3}x + \frac{8}{3}$
⑨ $m = -\frac{1}{4}; (2, 1)$	<input type="checkbox"/> J	$y = -\frac{1}{4}x + \frac{3}{2}$	<input type="checkbox"/> D	$y = -\frac{1}{4}x - \frac{3}{8}$
⑩ $m = 4; (-1, \frac{1}{2})$	<input type="checkbox"/> A	$y = 4x - \frac{2}{3}$	<input type="checkbox"/> T	$y = 4x + \frac{9}{2}$
⑪ $m = -2; (0, 0)$	<input type="checkbox"/> L	$y = -2x$	<input type="checkbox"/> B	$y = -2x - 2$
⑫ $m = 0; (-5, \frac{3}{4})$	<input type="checkbox"/> S	$y = \frac{3}{4}$	<input type="checkbox"/> N	$y = -5x$

9	5	12	10	8	2	1	10	6	4	12	3	4	11	11	2	8	7	1
---	---	----	----	---	---	---	----	---	---	----	---	---	----	----	---	---	---	---